

## 2.

The Templeton Crocker Expedition. II. Introduction, Itinerary,  
List of Stations, Nets and Dredges.<sup>1</sup>

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(Text-figures 1-8).

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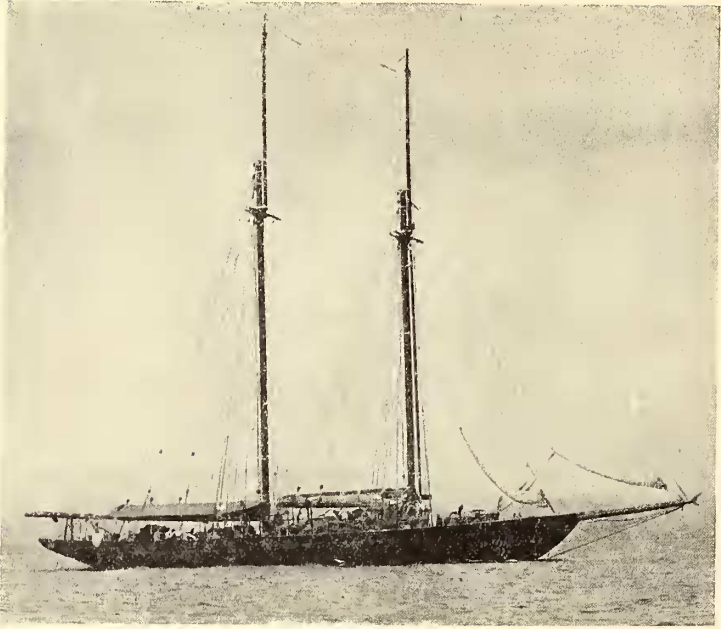
## INTRODUCTION.

The Twenty-fourth Expedition of the Department of Tropical Research was the result of an invitation from Mr. Templeton Crocker to accompany him on board his yacht *Zaca* on a trip to the Gulf of California. The Zoological Society is in Mr. Crocker's debt for the opportunities that he gave us to study the animal life of little-known places and for allowing us to concentrate our trawling and dredging activities on a few, carefully-chosen localities. Not only must Mr. Crocker be given full credit for the inception and carrying out of the expedition and for the constant care that he took to see that every wish of ours was provided for, but especial thanks are due to him for his active part in capturing, sorting, labelling and preserving specimens, thousands of which passed through his hands.

Four of the staff of the Department of Tropical Research were members of the expedition: Dr. William Beebe, Director; Mr. John Tee-Van, General Associate; Miss Jocelyn Crane, Technical Associate, and Mr. George Swanson, Artist. Mr. Toshio Asaeda, Mr. Crocker's artist, photographer and taxidermist, will always be remembered for his tireless energy and the able accomplishment of the many tasks that he set for himself. Of the efficient and carefully trained crew of the *Zaca* the following deserve special mention: Captain Alfred Pedersen, for his excellent handling of the ship and of the new dredging machinery and apparatus, First Mate John Ozanne, and the two Samoans, Pemasu Utu and Frank Taiga, both of whom demonstrated amazing skill in the capture of sea and shore life.

The *Zaca* (Text-fig. 1) is a Diesel schooner, 118 feet over all, with a gross tonnage of 84. She is supplied with all of the usual apparatus for capturing fish and animal life, such as seines, nets, submerged lights, etc.,

<sup>1</sup> Contribution No. 520, Department of Tropical Research, New York Zoological Society. This paper should have been No. I of the Templeton Crocker series, but unforeseen circumstances of publication shifted its position. No. I has the following title: The Templeton Crocker Expedition. I. Six New Brachyuran Crabs from the Gulf of California, by Steve A. Glassell, and was published in *Zoologica*, XXI, No. 17, pp. 213-218.



Text-figure 1.  
The *Zaca*.



Text-figure 2.

Bow-pulpit and boom-walk of the *Zaca*.

Text-figure 2 from photograph by Toshio Asaeda. Text-figure 1 and 3 to 8 by John Tee-Van.

in addition to which Mr. Crocker provided, expressly for this expedition, a gasoline-engined winch and a 7,500-foot length of  $\frac{1}{4}$ -inch diameter steel cable. With this apparatus we were able to trawl with silk plankton nets to a maximum depth of 600 fathoms and to dredge on the bottom with deep-sea dredges. Two newly-built and constantly used features of the vessel were the bow-pulpit placed at the tip of the bowsprit and the boom-walk on the starboard side of the ship (Text-fig. 2).

#### ITINERARY.

The route of the expedition is shown on the map in Text-fig. 3 and details of positions and depths of dredges at stations where large numbers of dredgings were made, are shown in Text-figs. 4 to 8 inclusive. The dates at the various localities, all in 1936, are as follows:<sup>2</sup> San Diego, March 19; Catalina Island, March 20, 21; San Diego, March 22 to 25; Cedros Island, March 27; Turtle Bay, March 27; Magdalena Bay, March 29; Cape San Lucas, March 30 to April 3; Gorda Banks, April 3; Arena Bank, April 4; Ceralbo Island, April 4; Espiritu Santo Island, April 4; Guaymas, April 6 to 8; Santa Inez Bay, April 9 to 17; Arena Bank, April 19 to 21; Gorda Banks, April 21 to 23; Cape San Lucas, April 23 to 26; Mazatlan, April 27 to 28; Arena Bank, April 30 to May 2; Gorda Banks, May 2 and 3; Cape San Lucas, May 3 to 7; Clarion Island, May 10 to 16; Alijos Rocks, May 19; Cedros Island, May 22; San Diego, May 25.

This list of localities seems rather long, but many of the names are duplicated, Cape San Lucas and Arena Bank, for instance, appearing three times.

Analysis of the time spent by the expedition in various phases of work illustrates the Department's method of concentrating its researches on a few, carefully-chosen localities. Thus 29 of the 61 days (48%) that the expedition was away from San Diego, were spent in sailing or concerned with oceanographic stations, working with plankton nets and submerged lights. During the remaining 32 days we worked littoral localities, mostly within the 100-fathom line. 95 per cent. of these 32 days were divided among three stations as follows: Cape San Lucas and adjacent banks (Gorda Banks, Arena Bank) 17 days (52%); Santa Inez Bay, 7½ days (24%); Clarion Island, 6 days (19%).

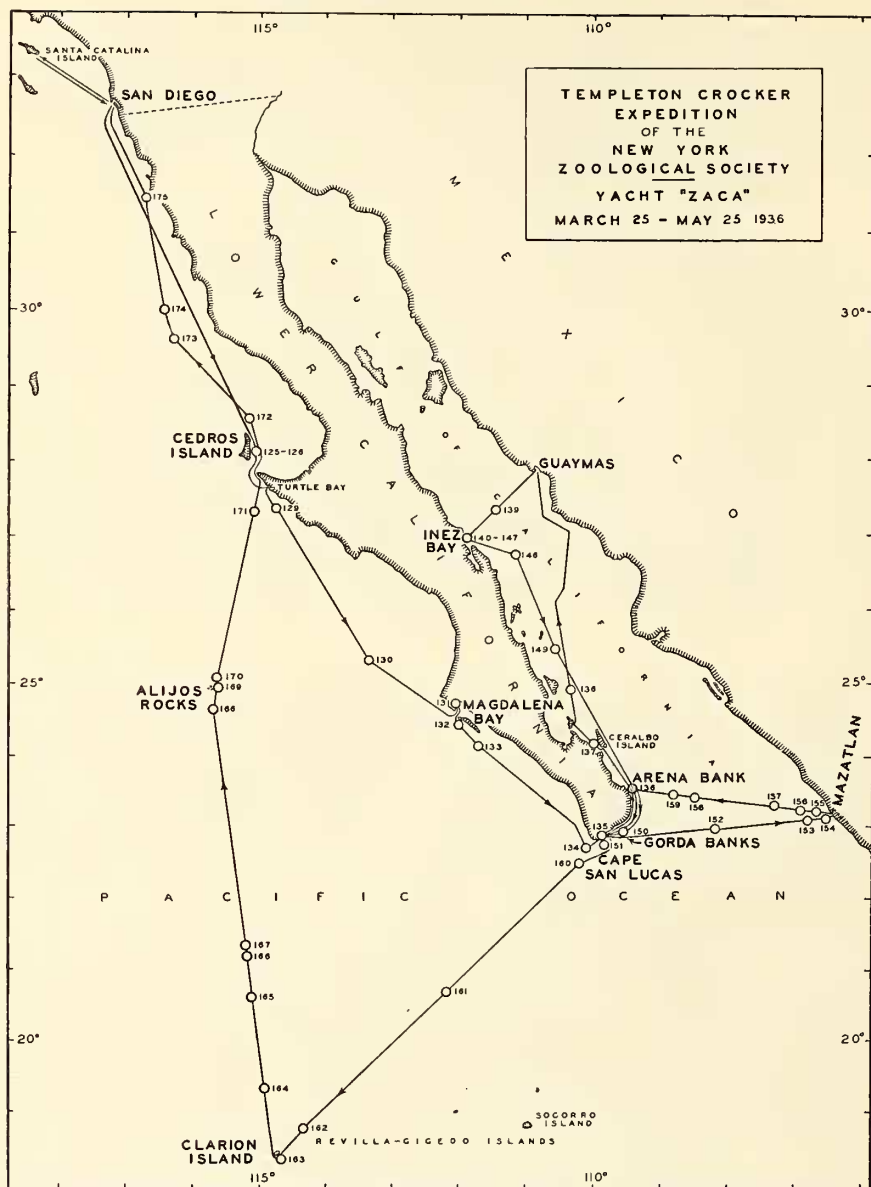
#### LIST OF STATIONS, NETS AND DREDGES.

In the following tables most of the facts are self-evident and the abbreviations are explained in the following sentences. The station numbers refer to the continuously numbered series of oceanographic stations of the Department of Tropical Research. In the second column the letter "D" refers to dredges and the letter "T" to tow-nets, so that for the sake of brevity a net may be referred to as "126 D-12," indicating the twelfth dredge at Station 126.

In the third column the 2-foot and 4-foot dredges were of the Blake type with mouths of the width stated. The bags of these dredges were of 2-inch and 1-inch stretched mesh, the majority being of the latter size. With the exception of dredge 125 D-1, all of the 2-foot dredge hauls were made from the *Zaca's* tenders. Dredge 125 D-1 and all of the 4-foot dredge hauls were handled from the deck of the yacht, using the  $\frac{1}{4}$ -inch steel cable previously mentioned.

The tow-nets of one-half metre and one metre diameter were of standard Michael Sars' type, with 2XX silk bolting cloth posteriorly and OXX bolting cloth anteriorly, the mouth of the net having a collar of shrimp

<sup>2</sup> This list includes only the shore stations and fueling localities. For details as to dates, etc., of the oceanographic stations see the List of Stations, Nets and Dredges.



Text-figure 3.

Route of the Templeton Crocker Expedition. The circles with attached numbers represent the positions of the dredging and oceanographic stations.

netting. The foot nets were diatom nets one foot in diameter and made of No. 20 silk bolting cloth.

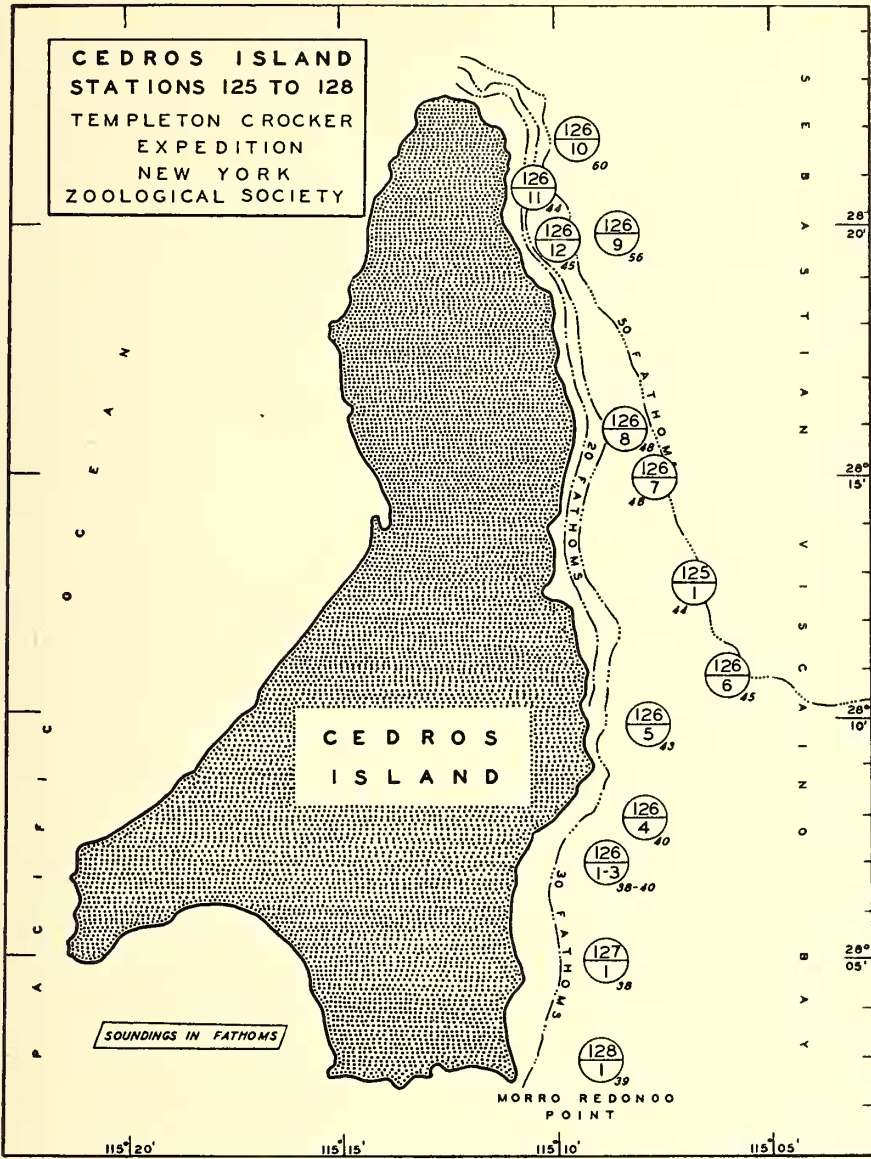
Light, when used in the third column, refers to night stations where submerged electric lights were employed and the captures of animals were made principally with dip nets.

## STATION LISTS AND DATA.

Station No.	Net No.	Type of Net	Depth		Position		General Locality	Date 1936	Start of Haul	Duration of Haul	
			Fathoms	Metres	N. Lat.	W. Long.				Hrs.	Mins.
125	D-1	2' dredge	44	80	28° 13'	115° 07'	E. of Cedros Is.	Mar. 27	6:40 a.m.	0	12
126	D-1	4' dredge	38	69	28° 07'	115° 09'	E. of Cedros Is.	27	8:30 a.m.	0	10
	D-2	4' dredge	38	69	28° 07'	115° 09'	E. of Cedros Is.	27	9:06 a.m.	0	30
								May			
	D-3	4' dredge	40	73	28° 07'	115° 09'	E. of Cedros Is.	22	10:08 a.m.	0	15
	D-4	4' dredge	40	73	28° 08'	115° 08'	E. of Cedros Is.	22	10:56 a.m.	0	10
	D-5	4' dredge	43	78	28° 10'	115° 08'	E. of Cedros Is.	22	11:37 a.m.	0	10
	D-6	4' dredge	45	82	28° 11'	115° 06'	E. of Cedros Is.	22	12:06 p.m.	0	10
	D-7	4' dredge	48	87	28° 15'	115° 08'	E. of Cedros Is.	22	1:52 p.m.	0	10
	D-8	4' dredge	48	87	28° 16'	115° 09'	E. of Cedros Is.	22	2:16 p.m.	0	10
	D-9	4' dredge	56	102	28° 20'	115° 09'	E. of Cedros Is.	22	3:12 p.m.	0	10
	D-10	4' dredge	60	109	28° 22'	115° 10'	E. of Cedros Is.	22	3:39 p.m.	0	20
	D-11	4' dredge	44	80	28° 21'	115° 11'	E. of Cedros Is.	22	4:37 p.m.	0	20
	D-12	4' dredge	45	82	28° 20'	115° 10' 30"	E. of Cedros Is.	22	5:20 p.m.	0	20
	T-1	Metre	0	0	28° 20'	115° 10' 30"	E. of Cedros Is.	22	6:06 p.m.	0	20
127	D-1	4' dredge	38	69	28° 05'	115° 09'	E. of Cedros Is.	Mar. 27	10:25 a.m.	0	30
128	D-1	4' dredge	39	71	28° 03'	115° 09'	E. of Cedros Is.	27	11:23 a.m.	0	30
129	T-1	Metre	4	7	27° 22'	114° 44'	15 m. NW. of San Pablo Point.	27	8:15 p.m.	0	30
130	T-1	Metre	400	732	25° 17'	113° 25'	68 m. WNW. of Cape San Lazaro.	28	4:30 p.m.	1	00
	T-2	Foot	0	0	25° 17'	113° 25'	68 m. WNW. of Cape San Lazaro.	28	5:06 p.m.	0	20
131	D-1	2' dredge	12	22	24° 36' 30"	112° 07' 30"	Magdalena Bay.	29	10:30 a.m.	0	30
132	T-1	Metre	0	0	24° 27'	112° 00'	4 m. S. of Redondo Pt., Magdalena Bay.	29	3:06 p.m.	0	20
133	—	Light	—	—	24° 09'	111° 43'	9 m. S. of Santa Margarita Is.	29	8:00 p.m.	1	0
134	T-1	Foot	0	0	22° 44'	110° 08'	12 m. SW. of Cape Falso.	30	2:43 p.m.	0	20
	T-2	½ Metre	450	820	22° 44'	110° 08'	12 m. SW. of Cape Falso.	30	2:12 p.m.	1	0
	T-3	Metre	550	1000	22° 44'	110° 08'	12 m. SW. of Cape Falso.	30	2:12 p.m.	1	0
135	D-1	2' dredge	8-16	14-29	22° 53'	109° 54'	San Lucas Bay.	31	10:00 a.m.	0	10
	D-2	2' dredge	8-16	14-29	22° 53'	109° 54'	San Lucas Bay.	31	10:20 a.m.	0	10
								April			
	D-3	2' dredge	8-16	14-29	22° 53'	109° 54'	San Lucas Bay.	1	11:00 a.m.	0	10
	D-4	2' dredge	8-16	14-29	22° 53'	109° 54'	San Lucas Bay.	2	10:20 a.m.	0	10
	D-5	2' dredge	8-16	14-29	22° 53'	109° 54'	San Lucas Bay.	2	10:40 a.m.	0	10
								May			
	D-6	2' dredge	6-20	11-36	22° 53'	109° 54'	San Lucas Bay.	6	10:00 a.m.	0	5
	D-7	2' dredge	6-20	11-36	22° 53'	109° 54'	San Lucas Bay.	6	10:15 a.m.	0	5
	D-8	2' dredge	6-20	11-36	22° 53'	109° 54'	San Lucas Bay.	6	10:20 a.m.	0	5
	D-9	2' dredge	6-20	11-36	22° 53'	109° 54'	San Lucas Bay.	6	10:30 a.m.	0	5
	D-10	2' dredge	6-20	11-36	22° 53'	109° 54'	San Lucas Bay.	6	10:45 a.m.	0	5
	D-11	2' dredge	6-20	11-36	22° 53'	109° 54'	San Lucas Bay.	6	11:00 a.m.	0	5
	D-12	2' dredge	6-20	11-36	22° 53'	109° 54'	San Lucas Bay.	6	11:15 a.m.	0	5
	D-13	2' dredge	2	3.6	22° 53'	109° 54'	San Lucas Bay.	6	11:30 a.m.	0	5
	D-14	2' dredge	6-20	11-36	22° 53'	109° 54'	San Lucas Bay.	6	11:45 a.m.	0	5
	D-15	2' dredge	6-20	11-36	22° 53'	109° 54'	San Lucas Bay.	6	12:00 p.m.	0	5
	D-16	2' dredge	6-20	11-36	22° 53'	109° 54'	San Lucas Bay.	6	12:10 p.m.	0	5
	D-17	2' dredge	20	36	22° 53'	109° 54'	San Lucas Bay.	7	9:15 a.m.	0	10
	D-18	2' dredge	4	7.5	22° 53'	109° 54'	San Lucas Bay.	7	9:25 a.m.	0	10
	D-19	2' dredge	3	5.5	22° 53'	109° 54'	San Lucas Bay.	7	9:30 a.m.	0	10

## STATION LISTS AND DATA (continued).

Station No.	Net No.	Type of Net	Depth		Position		General Locality	Date 1936	Start of Haul	Duration of Haul	
			Fathoms	Metres	N. Lat.	W. Long.				Hrs.	Min.
135	D-20	2' dredge	3	5.5	22° 53'	109° 54'	San Lucas Bay.	May 7	9:45 a.m.	0	10
	D-21	2' dredge	6	11	22° 53'	109° 54'	San Lucas Bay.	7	10:00 a.m.	0	10
	D-22	2' dredge	8	14.5	22° 53'	109° 54'	San Lucas Bay.	7	10:15 a.m.	0	10
	D-23	2' dredge	9	16	22° 53'	109° 54'	San Lucas Bay.	7	10:30 a.m.	0	10
	D-24	2' dredge	9	16	22° 53'	109° 54'	San Lucas Bay.	7	10:45 a.m.	0	10
	D-25	2' dredge	7	13	22° 53'	109° 54'	San Lucas Bay.	7	11:00 a.m.	0	10
	D-26	2' dredge	13	24	22° 53'	109° 54'	San Lucas Bay.	7	11:15 a.m.	0	10
136	D-1	4' dredge	45	82	23° 29'	109° 25'	Arena Bank.	April 3	3:40 p.m.	0	20
	D-2	4' dredge	45	82	23° 30' 30''	109° 26'	Arena Bank.	3	4:27 p.m.	0	20
	D-3	4' dredge	45	82	23° 31'	109° 27'	Arena Bank.	3	5:17 p.m.	0	20
	D-4	4' dredge	55	100	23° 32'	109° 27'	Arena Bank.	19	3:52 p.m.	0	4
	D-5	4' dredge	33	60	23° 31'	109° 27' 30''	Arena Bank.	19	4:45 p.m.	0	5
	D-6	4' dredge	35	64	23° 30'	109° 26'	Arena Bank.	19	5:17 p.m.	0	10
	D-7	4' dredge	55	100	23° 31'	109° 26'	Arena Bank.	19	5:35 p.m.	0	15
	D-8	4' dredge	45	82	23° 30'	109° 25' 30''	Arena Bank.	20	9:04 a.m.	0	10
	D-9	4' dredge	45	82	23° 30' 30''	109° 26'	Arena Bank.	20	9:27 a.m.	0	8
	D-10	4' dredge	45	82	23° 30'	109° 25' 30''	Arena Bank.	20	10:21 a.m.	0	10
	D-11	4' dredge	30-45	55-82	23° 29'	109° 25'	Arena Bank.	20	10:50 a.m.	0	8
	D-12	4' dredge	35	64	23° 28'	109° 24' 30''	Arena Bank.	20	11:22 a.m.	0	10
	D-13	4' dredge	45	82	23° 29'	109° 24'	Arena Bank.	20	11:46 a.m.	0	10
	D-14	4' dredge	45	82	23° 29' 30''	109° 25'	Arena Bank.	20	12:12 p.m.	0	10
	D-15	4' dredge	40	73	23° 28' 30''	109° 25'	Arena Bank.	20	3:14 p.m.	0	10
	D-16	4' dredge	45	82	23° 29' 30''	109° 25' 30''	Arena Bank.	20	3:42 p.m.	0	18
	D-17	4' dredge	45	82	23° 30' 30''	109° 26'	Arena Bank.	20	4:46 p.m.	0	15
	D-18	4' dredge	40	73	23° 30'	109° 25'	Arena Bank.	20	5:20 p.m.	0	10
	D-19	4' dredge	50	91	23° 31' 30''	109° 27'	Arena Bank.	30	8:57 a.m.	0	9
	D-20	4' dredge	43	78	23° 30'	109° 26'	Arena Bank.	30	9:51 a.m.	0	15
	D-21	4' dredge	45	82	23° 29'	109° 25'	Arena Bank.	30	10:49 a.m.	0	8
	D-22	4' dredge	45	82	23° 28' 30''	109° 25'	Arena Bank.	30	11:40 a.m.	0	11
	D-23	4' dredge	40	73	23° 28'	109° 24'	Arena Bank.	30	1:44 p.m.	0	10
	D-24	4' dredge	50	91	23° 29'	109° 23' 30''	Arena Bank.	30	2:19 p.m.	0	10
	D-25	4' dredge	60-80	100-145	23° 29' 30''	109° 23'	Arena Bank.	30	3:09 p.m.	0	10
D-26	4' dredge	45	82	23° 27'	109° 24'	Arena Bank.	May 1	9:19 a.m.	0	10	
D-27	4' dredge	50	91	23° 28'	109° 24'	Arena Bank.	1	10:25 a.m.	0	4	
D-28	4' dredge	85	154	23° 29'	109° 23' 30''	Arena Bank.	1	11:46 a.m.	0	14	
D-29	4' dredge	70	128	23° 26'	109° 24'	Arena Bank.	1	2:20 p.m.	0	5	
D-30	4' dredge	35	64	23° 27'	109° 24'	Arena Bank.	1	3:27 p.m.	0	5	
D-31	4' dredge	35	64	23° 28'	109° 23' 30''	Arena Bank.	1	4:27 p.m.	0	10	
D-32	4' dredge	42	76	23° 24' 30''	109° 24'	Arena Bank.	2	12:09 p.m.	0	10	
D-33	—	2-3	4-6	23° 26'	109° 24' 30''	Arena Bank.	2	10:30 a.m.	—	—	
137	D-1	4' dredge	46	84	24° 09'	110° 57'	Ceralbo Channel	April 4	9:44 a.m.	0	20
	D-2	4' dredge	46	84	24° 11'	110° 59'	Ceralbo Channel	4	10:29 a.m.	0	20
	D-3	4' dredge	46	84	24° 12'	110° 00'	Ceralbo Channel	4	11:05 a.m.	0	20
138	—	Light	—	—	24° 55'	110° 20'	10 m. E. of San Jose Island.	4	8:30 p.m.	2	0
139	T-1	½ Metre	1	2	27° 23'	111° 26'	23 m. ExS. of Tortuga Island.	8	2:00 p.m.	0	20
	T-2	Metre	300	549	27° 23'	111° 26'	23 m. ExS. of Tortuga Island.	8	1:23 p.m.	2	0
	T-3	Metre	400	732	27° 23'	111° 26'	23 m. ExS. of Tortuga Island.	8	1:23 p.m.	2	0
	T-4	Metre	500	914	27° 23'	111° 26'	23 m. ExS. of Tortuga Island.	8	1:23 p.m.	2	0



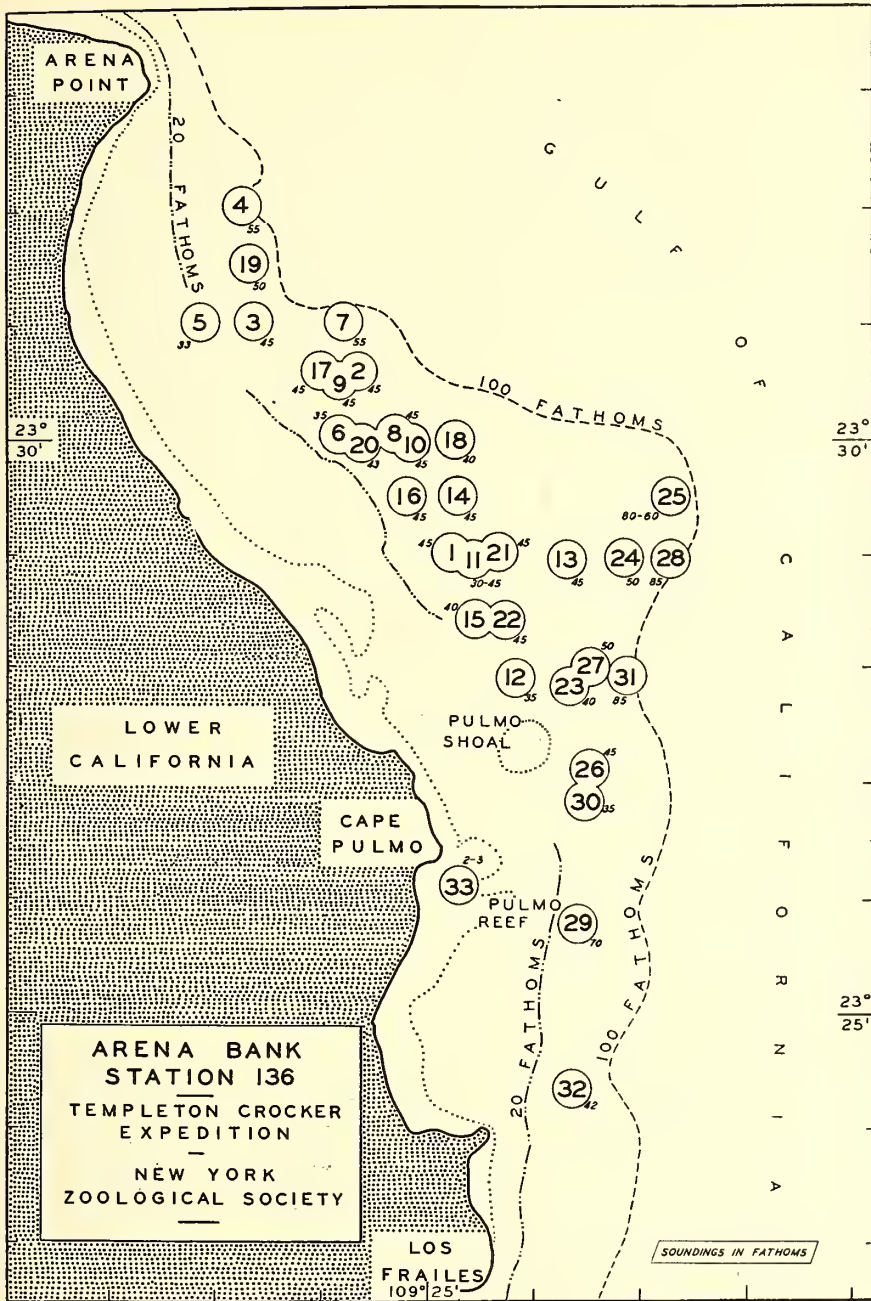
Text-figure 4.

Dredging Stations of the *Zaca* near the East coast of Cedros Island, Lower California, Nos. 125 to 128. The upper number within the circle is the station number, the lower the dredge number. The small figure in italics is the depth in fathoms.

## STATION LISTS AND DATA (continued).

Station No.	Net No.	Type of Net	Depth		Position		General Locality	Date 1936	Start of Haul	Duration of Haul		
			Fathoms	Metres	N. Lat.	W. Long.				Hrs.	Mins.	
140	T-1	Metre	0	0	27° 00'	111° 57'	Santa Inez Bay	April 9	8:58 p.m.	0	10	
	T-2	Metre	0	0	27° 00'	111° 57'	Santa Inez Bay	10	2:03 p.m.	0	10	
141	D-1	4' dredge	7-9	13-16	27° 02'	111° 58'	Santa Inez Bay	10	9:30 a.m.	0	20	
	D-2	4' dredge	10-15	18-27	27° 01'	111° 58' 30"	Santa Inez Bay	10	10:02 a.m.	0	20	
	D-3	4' dredge	18	33	27° 00' 30"	111° 58' 30"	Santa Inez Bay	10	10:32 a.m.	0	20	
	D-4	4' dredge	20	36	26° 59' 30"	111° 59'	Santa Inez Bay	10	11:03 a.m.	0	20	
142	D-1	4' dredge	30	54	27° 05'	111° 56'	Santa Inez Bay	11	8:51 a.m.	0	02	
	D-2	4' dredge	30-35	54-64	27° 04'	111° 55'	Santa Inez Bay	11	9:22 a.m.	0	10	
	D-3	4' dredge	40	73	27° 04'	111° 54'	Santa Inez Bay	11	10:05 a.m.	0	20	
	D-4	4' dredge	40-50	73-91	27° 03'	111° 53' 30"	Santa Inez Bay	11	10:42 a.m.	0	20	
143	T-1	Metre	0	0	27° 04'	111° 55'	Santa Inez Bay	11	11:32 a.m.	0	10	
	D-1	4' dredge	29	53	26° 58' 30"	111° 57' 30"	Santa Inez Bay	13	8:57 a.m.	0	20	
	D-2	4' dredge	30	55	26° 58'	111° 56' 30"	Santa Inez Bay	13	10:29 a.m.	0	10	
	D-3	4' dredge	35	64	26° 57'	111° 56'	Santa Inez Bay	13	10:58 a.m.	0	10	
	D-4	4' dredge	25	46	26° 55'	111° 54'	Santa Inez Bay	13	11:59 a.m.	0	6	
144	D-5	4' dredge	18	33	26° 54'	111° 53'	Santa Inez Bay	13	12:30 p.m.	0	10	
	D-1	2' dredge	1	2	26° 50' 45"	111° 54' 20"	Santa Inez Bay	15	9:50 a.m.	0	5	
	D-2	2' dredge	2½	4.5	26° 50' 45"	111° 54' 20"	Santa Inez Bay	15	10:05 a.m.	0	5	
	D-3	2' dredge	2½	4.5	26° 50' 45"	111° 54' 20"	Santa Inez Bay	15	10:15 a.m.	0	5	
	D-4	2' dredge	1½-4	3-7.5	26° 50' 45"	111° 54' 20"	Santa Inez Bay	15	10:23 a.m.	0	5	
	D-5	2' dredge	4	7.5	26° 50' 45"	111° 54' 20"	Santa Inez Bay	15	10:30 a.m.	0	5	
	D-6	2' dredge	3½	6.5	26° 50' 45"	111° 54' 20"	Santa Inez Bay	15	10:40 a.m.	0	5	
	D-7	2' dredge	3	5.5	26° 50' 45"	111° 54' 20"	Santa Inez Bay	15	10:50 a.m.	0	6	
145	D-8	2' dredge	3	5.5	26° 50' 45"	111° 54' 20"	Santa Inez Bay	15	11:00 a.m.	0	5	
	D-1	2' dredge	13	24	26° 52'	111° 53'	Santa Inez Bay	16	5:20 p.m.	0	5	
	D-2	2' dredge	6-8	11-14	26° 52'	111° 53'	Santa Inez Bay	16	5:30 p.m.	0	5	
	D-3	2' dredge	4	7.5	26° 52'	111° 53'	Santa Inez Bay	16	5:40 p.m.	0	5	
	T-1	Metre	0	0	26° 52'	111° 53'	Santa Inez Bay	14	9:00 p.m.	0	10	
	T-2	Metre	0	0	26° 52'	111° 53'	Santa Inez Bay	16	1:20 p.m.	0	10	
	146	D-1	4' dredge	35	64	26° 54' 20"	111° 48' 45"	Santa Inez Bay	17	8:41 a.m.	0	15
	147	D-1	4' dredge	83	150	26° 56'	111° 47' 15"	Santa Inez Bay	17	9:45 a.m.	0	15
148	D-2	4' dredge	60	110	26° 57' 30"	111° 48' 30"	Santa Inez Bay	17	10:54 a.m.	0	15	
	T-1	½ Metre	0	0	26° 48' 40"	111° 20' 30"	13 m. NNE. of San Ildefonso Is.	17	4:10 p.m.	0	25	
148	T-2	Metre	300	549	26° 48' 40"	111° 20' 30"	13 m. NNE. of San Ildefonso Is.	17	3:45 p.m.	1	20	
	T-3	Metre	400	732	26° 48' 40"	111° 20' 30"	13 m. NNE. of San Ildefonso Is.	17	3:45 p.m.	1	20	
	T-4	Metre	500	914	26° 48' 40"	111° 20' 30"	13 m. NNE. of San Ildefonso Is.	17	3:45 p.m.	1	20	
	T-5	½ Metre	0	0	26° 48'	111° 15'	20 m. NE. of San Ildefonso Is.	17	9:11 p.m.	0	25	
	T-6	Metre	300	549	26° 48'	111° 15'	20 m. NE. of San Ildefonso Is.	17	9:03 p.m.	1	20	
	T-7	Metre	400	732	26° 48'	111° 15'	20 m. NE. of San Ildefonso Is.	17	9:03 p.m.	1	20	
	T-8	Metre	500	914	26° 48'	111° 15'	20 m. NE. of San Ildefonso Is.	17	9:03 p.m.	1	20	
	149	—	Light	—	—	25° 25'	110° 33'	10 m. NE. of Santa Cruz Is.	18	8:40 p.m.	0	50
150	D-1	4' dredge	93	169	23° 01' 30"	109° 29'	Gorda Banks.	21	1:39 p.m.	0	10	
	D-2	4' dredge	75	137	23° 01'	109° 28'	Gorda Banks.	21	2:20 p.m.	0	10	
	D-3	4' dredge	58	106	23° 00'	109° 28'	Gorda Banks.	21	2:54 p.m.	0	10	
	D-4	4' dredge	70	128	23° 01'	109° 29'	Gorda Banks.	21	3:30 p.m.	0	10	
	D-5	4' dredge	40-100	73-182	23° 01' 30"	109° 30'	Gorda Banks.	21	4:11 p.m.	0	10	
	D-6	4' dredge	60	109	23° 02'	109° 31'	Gorda Banks.	21	6:16 p.m.	0	10	



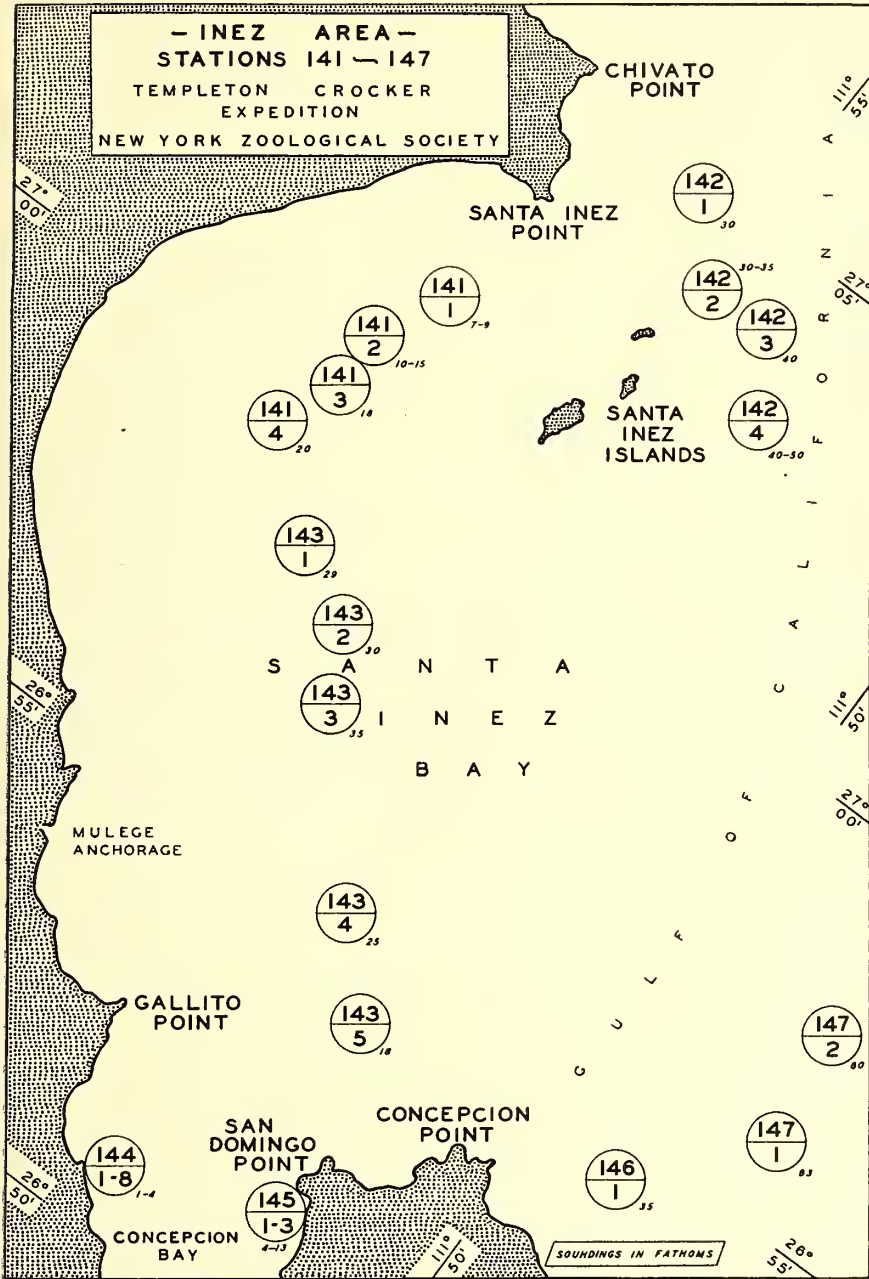


Text-figure 5.

Dredging Stations of the *Zaca* on Arena Bank, Gulf of California, Station 136. The number within the circle is the dredge number. The small figure in italics represents the depth in fathoms.

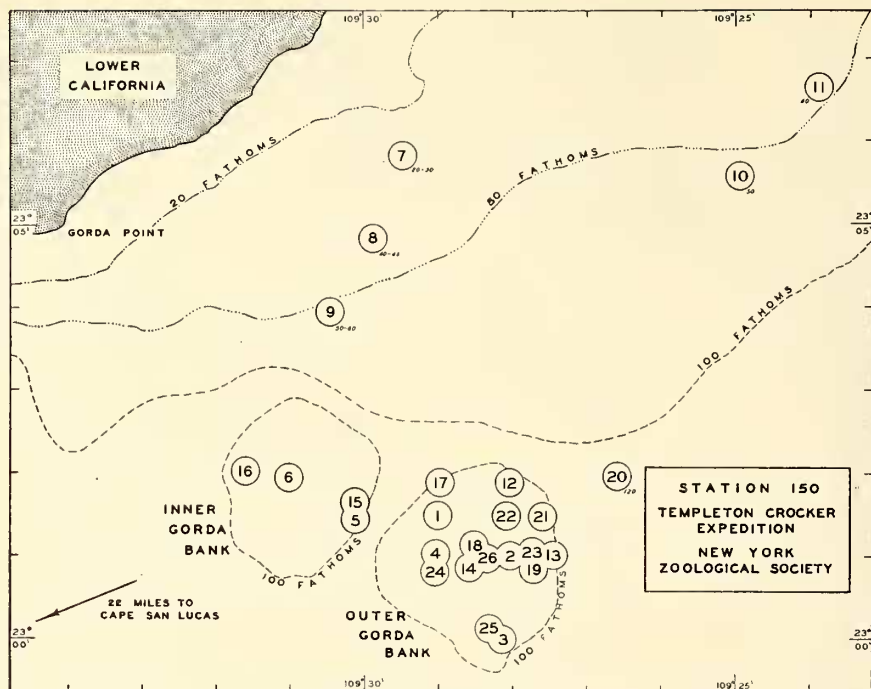
## STATION LISTS AND DATA (continued).

Station No.	Net No.	Type of Net	Depth		Position		General Locality	Date 1936	Start of Haul	Duration of Haul		
			Fathoms.	Meters	N. Lat.	W. Long.				Hrs.	Mins.	
150	D-7	4' dredge	20-30	36-55	23° 06'	109° 29' 30''	Gorda Banks.	April 22	9:11 a.m.	0	2	
	D-8	4' dredge	40-45	73-82	23° 05'	109° 30'	Gorda Banks.	22	9:35 a.m.	0	10	
	D-9	4' dredge	50-60	91-109	23° 04'	109° 30' 30''	Gorda Banks.	22	10:07 a.m.	0	5	
	D-10	4' dredge	50	91	23° 06'	109° 25'	Gorda Banks.	22	2:44 p.m.	0	½	
	D-11	4' dredge	40	73	23° 07'	109° 24'	Gorda Banks.	22	3:29 p.m.	0	0	
	D-12	4' dredge	80-90	145-165	23° 02'	109° 28'	Gorda Banks.	22	5:36 p.m.	0	10	
	D-13	4' dredge	70-80	128-146	23° 01'	109° 27' 30''	Gorda Banks.	23	9:12 a.m.	0	20	
	D-14	4' dredge	60	109	23° 01'	109° 28' 30''	Gorda Banks.	23	9:58 a.m.	0	20	
	D-15	4' dredge	80	146	23° 01' 30''	109° 30'	Gorda Banks.	23	10:43 a.m.	0	18	
	D-16	4' dredge	67-75	122-136	23° 02'	109° 30' 30''	Gorda Banks.	23	11:22 a.m.	0	11	
								May 3	8:43 a.m.	0	7	
	D-17	4' dredge	90	165	23° 02'	109° 29'	Gorda Banks.	3	9:19 a.m.	0	16	
	D-18	4' dredge	60	109	23° 01'	109° 28' 30''	Gorda Banks.	3	10:13 a.m.	0	10	
	D-19	4' dredge	50	91	23° 01'	109° 27' 30''	Gorda Banks.	3	10:53 a.m.	0	12	
	D-20	4' dredge	120	219	23° 02'	109° 26' 30''	Gorda Banks.	3	1:34 p.m.	0	10	
	D-21	4' dredge	80	146	23° 01' 30''	109° 27'	Gorda Banks.	3	2:14 p.m.	0	15	
	D-22	4' dredge	68	124	23° 01' 30''	109° 28'	Gorda Banks.	3	3:02 p.m.	0	10	
	D-23	4' dredge	45	82	23° 01'	109° 27' 30''	Gorda Banks.	3	3:38 p.m.	0	10	
	D-24	4' dredge	60	109	23° 01'	109° 29'	Gorda Banks.	3	4:13 p.m.	0	10	
	D-25	4' dredge	56	102	23° 00'	109° 28'	Gorda Banks.	3	4:44 p.m.	0	11	
	D-26	4' dredge	55	100	23° 01'	109° 28' 30''	Gorda Banks.	3				
		T-1	Metre	0	0	23° 01' 30''	109° 29'	Gorda Banks.	April 21	1:20 p.m.	0	10
		T-2	Metre	0	0	23° 03'	109° 30'	Gorda Banks.	21	9:30 p.m.	0	10
		T-3	Metre	0	0	23° 06'	109° 26'	Gorda Banks.	22	12:50 p.m.	0	10
	151	D-1	4' dredge	65	128	22° 51' 30''	109° 54'	3 m. E. of Cape Falso.	24	8:48 a.m.	0	10
		D-2	4' dredge	60	109	22° 51'	109° 55'	3 m. E. of Cape Falso.	24	9:18 a.m.	0	5
152	—	Light	—	—	23° 00'	108° 11'	80 m. E. of San Jose del Cabo.	26	9:00 p.m.	0	45	
153	D-1	4' dredge	120	218	23° 06'	106° 47'	19 m. W. of Mazatlan.	27	9:24 a.m.	0	5	
154	D-1	4' dredge	45	82	23° 06'	106° 35'	4½ m. SW. of Mazatlan.	27	10:49 a.m.	0	5	
	D-2	4' dredge	35	64	23° 07'	106° 32'	4½ m. SW. of Mazatlan.	27	11:11 a.m.	0	20	
155	D-1	4' dredge	56	102	23° 12'	106° 40'	13 m. W. of Mazatlan.	28	8:42 a.m.	0	20	
	D-2	4' dredge	60	109	23° 12'	106° 42'	13 m. W. of Mazatlan.	28	9:25 a.m.	0	11	
156	D-1	4' dredge	135	246	23° 13'	106° 52'	21 m. W. of Mazatlan.	28	11:42 a.m.	0	20	
	D-2	4' dredge	235	428	23° 13'	106° 54'	21 m. W. of Mazatlan.	28	2:17 p.m.	0	20	
	D-3	4' dredge	235	428	23° 15'	106° 56'	21 m. W. of Mazatlan.	28	3:46 p.m.	0	30	
157	T-1	Metre	1	2	23° 20'	107° 17'	47 m. W. of Mazatlan.	28	9:16 p.m.	0	20	
	T-2	Metre	300	549	23° 20'	107° 17'	47 m. W. of Mazatlan.	28	9:02 p.m.	1	0	
158	T-1	½ Metre	1	2	23° 25'	108° 31'	48 m. E. of Arena Point.	29	9:36 a.m.	0	20	
	T-2	Metre	300	549	23° 25'	108° 31'	48 m. E. of Arena Point.	29	9:09 a.m.	1	0	
	T-3	Metre	400	732	23° 25'	108° 31'	48 m. E. of Arena Point.	29	9:09 a.m.	1	0	



Text-figure 6.

Dredging Stations of the *Zaca* in the Inez Bay Area, Gulf of California, Stations 141 to 147. The upper number within the circle is the station number, the lower the dredge number. The small figure in italics represents the depth in fathoms.

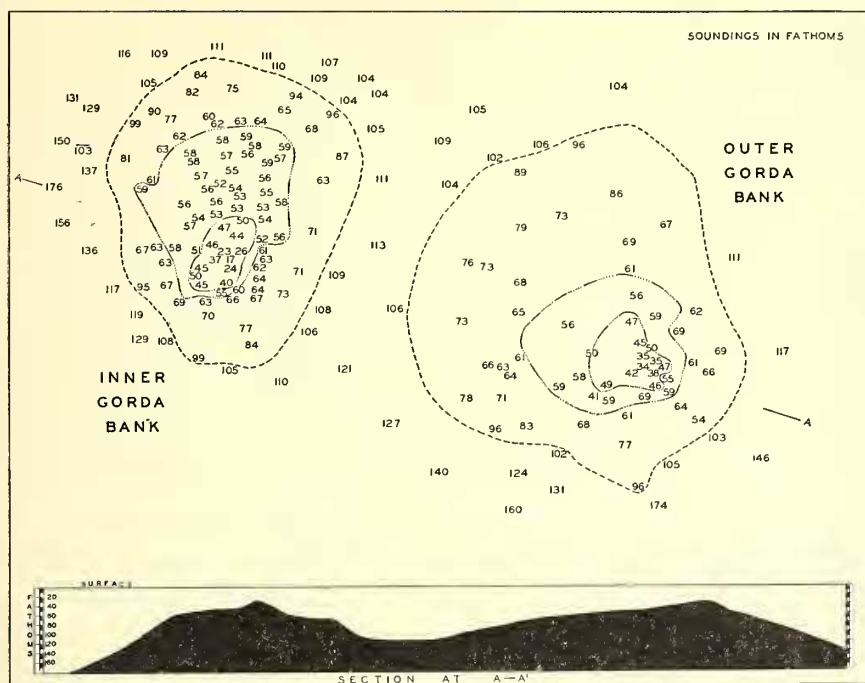


Text-figure 7.

Dredging Stations of the *Zaca* on the Gorda Banks and vicinity, southern tip of Lower California, Station 150. The numbers within the circles are the numbers of the dredges. The small figure in italics represents the depth in fathoms.

STATION LISTS AND DATA (*continued*).

Station No.	Net No.	Type of Net	Depth		Position		General Locality	Date 1936	Start of Haul	Duration of Haul	
			Fathoms	Metres	N. Lat.	W. Long.				Hrs.	Mins.
158	T-4	Metre	500	914	23° 25'	108° 31'	48 m. E. of Arena Point.	April 29	9:09 a.m.	1	0
159	T-1	Metre	300	549	23° 27'	108° 49'	34 m. ExS. of Arena Point.	29	2:34 p.m.	2	30
	T-2	Metre	400	732	23° 27'	108° 49'	34 m. ExS. of Arena Point.	29	2:34 p.m.	2	30
	T-3	Metre	500	914	23° 27'	108° 49'	34 m. ExS. of Arena Point.	29	2:34 p.m.	2	30
160	—	Light	—	—	22° 30'	110° 15'	27 m. SW. of Cape Falso.	May 7	8:45 p.m.	0	40
161	T-1	Metre	0	0	20° 40'	112° 10'	185 m. SW. of Cape Falso.	8	9:50 p.m.	0	10
	—	Light	—	—	20° 40'	112° 10'	185 m. SW. of Cape Falso.	8	8:50 p.m.	1	0
162	—	Light	—	—	18° 44'	114° 20'	30 m. NE. of Clarion Is.	9	9:00 p.m.	2	0



Text-figure 8.

Soundings in fathoms on the Gorda Banks, and section of the Banks at the line A-A. The soundings are from the original surveys of the Banks and were supplied through the courtesy of the Hydrographic Office, U.S. Navy.

STATION LISTS AND DATA (*continued*).

Station No.	Net No.	Type of Net	Depth		Position		General Locality	Date 1936	Start of Haul	Duration of Haul	
			Fathoms	Metres	N. Lat.	W. Long.				Hrs.	Mins.
			163	D-1	2' dredge	20				36	18° 20' 40"
	D-2	4' dredge	55	100	18° 19'	114° 45'	3 m. off Pyramid Rock, Clarion Is.	12	9:16 a.m.	0	10
	D-3	4' dredge	50	91	18° 19' 30"	114° 44' 30"	3 m. off Pyramid Rock, Clarion Is.	12	9:40 a.m.	0	1
	D-4	4' dredge	50	91	18° 20'	114° 43'	3 m. off Pyramid Rock, Clarion Is.	12	10:38 a.m.	0	10
	D-5	4' dredge	48	87	18° 20' 30"	114° 42' 30"	3 m. off Pyramid Rock, Clarion Is.	12	10:59 a.m.	0	0
	D-6	4' dredge	45	82	18° 20'	114° 42'	3 m. off Pyramid Rock, Clarion Is.	12	11:27 a.m.	0	1
	T-1	Metre	0	0	18° 20' 40"	114° 44' 20"	Sulphur Bay, Clarion Island.	10	1:15 p.m.	0	10
	T-2	Metre	0	0	18° 20' 40"	114° 44' 20"	Sulphur Bay, Clarion Island.	10	9:00 p.m.	0	10
	T-3	Metre	0	0	18° 20' 40"	114° 44' 20"	Sulphur Bay, Clarion Island.	11	12:45 p.m.	0	10

## STATION LISTS AND DATA (continued)

Station No.	Net No.	Type of Net	Depth		Position		General Locality	Date 1936	Start of Haul	Duration of Haul	
			Fathoms	Metres	N. Lat.	W. Long.				Hrs.	Mins.
	T-4	Metre	0	0	18° 20' 40''	114° 44' 20''	Sulphur Bay, Clarion Island	May 11	9:15 p.m.	0	10
	T-5	Metre	0	0	18° 20' 40''	114° 44' 20''	Sulphur Bay, Clarion Island.	12	9:30 p.m.	0	10
	T-6	Metre	0	0	18° 20' 40''	114° 44' 20''	Sulphur Bay, Clarion Island.	12	9:50 p.m.	0	10
	T-7	Metre	0	0	18° 20' 40''	114° 44' 20''	Sulphur Bay, Clarion Island.	13	10:20 a.m.	0	10
164	—	Light	—	—	19° 20'	114° 55'	58 m. N. of Clarion Island.	16	9:05 p.m.	0	20
165	T-1	½ Metre	0	0	20° 36'	115° 07'	145 m. N. of Clarion Island.	17	12:05 p.m.	0	30
	T-2	Metre	400	732	20° 36'	115° 07'	145 m. N. of Clarion Island.	17	9:52 a.m.	3	0
	T-3	Metre	500	914	20° 36'	115° 07'	145 m. N. of Clarion Island.	17	9:52 a.m.	3	0
	T-4	Metre	600	1097	20° 36'	115° 07'	145 m. N. of Clarion Island.	17	9:52 a.m.	3	0
166	—	Surface	—	—	21° 12'	115° 11'	173 m. N. of Clarion Island.	17	5:15 p.m.	0	30
167	—	Light	—	—	21° 20'	115° 14'	183 m. N. of Clarion Island.	17	9:00 p.m.	0	20
168	T-1	Metre	1-2	2-4	24° 38'	115° 42'	20 m. S. of Alijos Rocks.	19	11:22 a.m.	0	20
169	T-1	Metre	2	4	24° 57'	115° 48'	½ m. E. of Alijos Rocks.	19	4:38 p.m.	0	20
170	—	Light	—	—	25° 02'	115° 52'	5½ m. N. of Alijos Rocks.	19	9:00 p.m.	0	12
	T-1	Metre	2	4	25° 02'	115° 52'	5½ m. N. of Alijos Rocks.	19	7:59 p.m.	0	20
171	T-1	Metre	1	2	27° 19'	115° 05'	50 m. SW. of Cedros Island.	21	12:20 p.m.	0	20
172	—	Light	—	—	28° 33'	115° 15'	12 m. N. of Cedros Island.	22	9:15 p.m.	0	20
173	T-1	½ Metre	0	0	29° 35'	116° 20'	30 m. W. of Point Antonio	23	2:57 p.m.	1	0
174	—	Light	—	—	30° 00'	116° 27'	30 m. SW. of Cape San Quentin.	23	9:00 p.m.	0	20
175	D-1	4' dredge	45	80	31° 25'	116° 42'	5 m. W. of San Jose Point.	24	10:28 a.m.	0	10
	D-2	4' dredge	45	80	31° 25' 30''	116° 42' 30''	5 m. W. of San Jose Point.	24	10:54 a.m.	0	10
	D-3	4' dredge	45	80	31° 28'	116° 43'	5 m. W. of San Jose Point.	24	11:15 a.m.	0	10
	T-1	½ Metre	2	4	31° 28'	116° 43'	5 m. W. of San Jose Point.	24	11:40 a.m.	0	10